



IN THE CLAIMS

Please amend claims 1, 6-11, and 17-26.

Please enter the pending claims as follows:

- 1 1. (Currently Amended) A broad-angle multilayer (ML) mirror
2 comprising a multiple layer structure to provide uniform reflectivity over a wide
3 range of incident angles with small phase shifts, the structure comprising 36 bi-
4 layers wherein Molybdenum has a thickness of 2.4 – 11.3 nm and Silicon has a
5 thickness of 3.5 – 10.4 nm.
- 1 2. (Original) The ML mirror of claim 1 wherein the ML mirror provides
2 an acceptance angle in excess of 20° without a significant loss of reflectivity.
- 1 3. (Original) The ML mirror of claim 2 wherein the loss of reflectivity is
2 approximately 17%.
- 1 4. (Original) The ML mirror of claim 1 wherein the ML mirror increases
2 the relative phase shift.

1 5. (Original) The ML mirror of claim 1 wherein the ML mirror comprises
2 a 13.5nm central wavelength.

1 6. (Currently Amended) The ML mirror of claim 1 wherein the structure
2 comprises:

3 ~~a substrate layer; and~~

4 ~~a plurality of bi-layers to provide~~ a 13.5nm central wavelength.

1 7. (Currently Amended) The ML mirror of claim 1 [6] wherein the
2 ~~plurality of bi-layers in the structure~~ have a variable thickness.

1 8. (Currently Amended) The ML mirror of claim 1 [6] wherein the
2 ~~plurality of~~ structure includes additional bi-layers ~~include thirty-six bi-layers.~~

1 9. (Currently Amended) The ML mirror of claim 8 [6] wherein the
2 additional bi-layers in the structure are comprised of Mo/Si bi-layers.

1 10. (Currently Amended) The ML mirror of claim 8 [6] wherein the
2 additional bi-layers in the structure have a variable thickness ~~are comprised of~~
3 ~~Mo/Be bi-layers.~~

1 11. (Currently Amended) An optical system having an extreme ultra-
2 violet (EUV) radiation source, the system comprising:
3 a mask;
4 a wafer; and
5 a plurality of reflecting surfaces for imaging the mask on the wafer,
6 wherein one or more of the plurality of reflecting surfaces includes a broad-angle
7 multilayer (ML) mirror having a multiple layer structure to provide uniform
8 reflectivity over a wide range of angles with small phase shifts, the ML mirror
9 comprising 36 bi-layers wherein Molybdenum has a thickness of 2.4 – 11.3 nm
10 and Silicon has a thickness of 3.5 – 10.4 nm.

1 12. (Original) The system of claim 11 wherein the plurality of reflecting
2 surfaces comprises six mirrors.

1 13. (Original) The system of claim 11 wherein the ML mirror provides an
2 acceptance angle in excess of 20° without a significant loss of reflectivity.

1 14. (Original) The system of claim 13 wherein the ML mirror has a loss of
2 reflectivity of approximately 17%.

1 15. (Original) The system of claim 11 wherein the ML mirror increases the
2 relative phase shift.

1 16. (Original) The system of claim 11 wherein the ML mirror comprises a
2 13.5 nm central wavelength.

1 17. (Currently Amended) The system of claim 11 wherein the ~~mirror~~
2 structure comprises:
3 a ~~substrate layer; and~~
4 a ~~plurality of bi-layers to provide~~ a 13.5nm central wavelength.

1 18. (Currently Amended) The system of claim 11 [17] wherein the
2 ~~plurality of bi-layers~~ have a variable thickness.

1 19. (Currently Amended) The system of claim 11 [18] wherein the
2 ~~plurality of bi-layers include~~ structure includes more than thirty-six bi-layers.

1 20. (Currently Amended) An optical system having an extreme ultra-
2 violet (EUV) radiation source, the system comprising:
3 a mask;
4 a wafer; and

5 a plurality of reflecting surfaces for imaging the mask on the wafer,
6 including:
7 ~~a first mirror;~~
8 ~~a second mirror;~~
9 a ~~third~~ mirror having a multiple layer structure to provide uniform
10 reflectivity over a wide range of angles with small phase shifts, the mirror
11 comprising 36 bi-layers wherein Molybdenum has a thickness of 2.4 - 3.7 nm
12 except for a thicker bi-layer 1 nearest substrate and Silicon has a thickness of 3.5
13 - 4.1 nm except for thicker bi-layers 3, 5, and 15 [;]
14 ~~a fourth mirror;~~
15 ~~a fifth mirror; and~~
16 ~~a sixth mirror.~~

1 21. (Currently Amended) The system ~~mirror~~ of claim 20 wherein the
2 ~~third~~ mirror provides an acceptance angle in excess of 20° without a significant
3 loss of reflectivity.

1 22. (Currently Amended) The system of claim 21 wherein the ~~third~~
2 mirror has a loss of reflectivity of approximately 17%.

1 23. (Currently Amended) The system ~~mirror~~ of claim 20 [22] wherein the
2 ~~third~~ mirror comprises a 13.5nm central wavelength.

1 24. (Currently Amended) The system of claim 20 wherein the ~~third~~
2 ~~mirror~~ structure comprises:
3 a ~~substrate layer~~; and
4 a ~~plurality of bi-layers to provide~~ a 13.5nm central wavelength.

1 25. (Currently Amended) The system of claim 20 [24] wherein the
2 ~~plurality of bi-layers~~ have a variable thickness.

1 26. (Currently Amended) The system of claim 20 [24] wherein the
2 ~~plurality of bi-layers include~~ structure includes more than thirty-six bi-layers.